Method for Reducing the Melting Point of Cubic Metals and Enhancing Their Thermal Conductivity via Emulation of Coulomb Dynamics of Mercury - Molecular Dynamics Underpinning Efficient Diffusion of Heat in Mercury Rooted in Rhomboid Geometry of Clusters of Mercury Atoms Which Drive Free Molecular Rotation

22 February 2024
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Introduction

Although it is understood that mercury is an efficient diffuser of heat energy, the quantum dynamics of this tendency toward efficient diffusion have not been properly studied. Through a proper understanding of mercury's property of efficient heat diffusion, synthetic heat-diffusive liquid-at-room-temperature mercury alternatives may be developed which are both low-cost and non-toxic.

Abstract

Mercury's (as well as bromine's) tendency toward remaining in a liquid state at room temperature are rooted in their rhomboid geometry. These rhomboids, given their property of having symmetry in only one dimension, lead to the creation of powerful electroweak alignments of electrons which rather than having two aligned foci at the center of nodes, have two foci which are divided against one another, with one of these lines centered on the nodes and the others consistently positioned randomly between the nodes of the lattice.

The result of this heretofore unrecognized phenomenon is that rhombi of mercury and bromine, although they will form a lattice if left undisturbed, will tend to freely rotate when pressure, vibration, or heat is introduced. Unlike certain non-Newtonian fluids, resistance to applied force decreases rather than increasing relative to the kinetic force applied. This enables a metal such a mercury to behave as a liquid when it is agitated whilst forming a lattice when it is left undisturbed. The constant rotational movement of individual mercury atoms within rhomboids around a central axis prevents them from forming covalent bonds with mercury atoms in other rhombiform nodes. Whereas Coulomb forces tend to hold lattices in place (as in the case of water ice or most metals,) these forces are responsible for bringing about a non-Newtonian behavior on the other end of the spectrum from those which solidify in response to pressure.

Another consequence of these off-center foci of Coulomb Force Lines in mercury and bromine is that individual rhombi will tend to freely rotate on their own axis whilst in a lattice configuration. This rotation not only prevents the formation of covalent bonds between nodes ensuring mercury and bromine's liquid state at room temperature, but it enables a heretofore unrecognized phenomenon of

physics which is responsible for mercury's remarkable property of heat conduction.

When heat is introduced to any given rhombiform node of mercury, a rotation is induced which results in heated atoms on one side of rhomboids being conveyed to the opposing side through this rotation This dynamic could be compared to the dynamic of rollers on a conveyor. The attraction of atoms in different nodes to one another creates a tendency for these nodes to come into extreme proximity during these rotations. Through these proximal passages, heat is efficiently conducted from one node into the next with all of the nodes continually rotating and making contact for just long enough to conduct heat, but not for long enough for covalent bonds to be established.

Synthetic metals with comparable rhomboid geometries may be tailored for the purposes of facilitating heat conduction in applications which call for such materials such as the cooling of computer systems, particularly those onboard orbital platforms given the need to diffuse heat from intense solar radiation. Thermoelectric units can be enhanced through the purposeful diffusion of heat in non-thermoelectric bulks into thermoelectric materials. The small size of mercury rhomboids is a large part of the reason for its efficiency whereas synthetic molecules made of other materials which have rhomboid geometries would likely be less efficient than mercury as a conductor of heat.

The Underlying Dynamics Prompting Rhomboid Geometries

Mercury and bromine have been thought of as being unrelated given that they sit in different columns of the periodic table and have substantially different atomic weights. What they share are rhomboid geometries. Iodine; with its melting point being above room temperature but still far lower than other metals; also owes its properties to this geometrical feature. For a rhombus to form out of squares at the molecular level, Coulomb Force dynamics must be altered by the very establishment of electron bonds.

For example, pairing four mercury atoms into a two-dimensional square does not generate a rhombus (even in two dimensions,) but combining two such two-dimensional squares will result in the skewing of the relative positions of the two squares in a single dimension. The only suitable explanation for this is that forming covalent bonds on more than one side of an electron cloud creates a repetition in the pattern of orbit of valence electrons. Two points of bonding result in a "guide" being applied in two out of three possible dimensions relative to a sphere. If a guide were applied in three dimensions, you would have an electron stuck in a single point in an orbit and not in motion. With two dimensions (an atom of mercury bound on two sides to other mercury atoms) the orbit of at least one of the valence electrons would become constrained to a particular orbit or range of orbits. While these atoms will support bonding on two sides, they do not support bonding on three sides.

Once bonding on two sides has been achieved, newly formed groups of mercury atoms could be expected to be cubic for an infinitesimal length of time, but would quickly deform into the familiar rhombus shape.

In the aggregate, large numbers of these rhombi result in two sets of conflicting Coulomb Lines: One, which is centered upon nodes and which supports the formation of a lattice and another which is centered not on the center of nodes but on a point somewhere between the nodes, resulting in the aforementioned non-Newtonian behavior. Not unlike a house of cards, the misaligned bracing effect of the two sets of lines permits the formation of a lattice only so long as no external force disturbs the fluid.

Reducing the Melting Point of Cubic Metals Through Nesting of Metals Within Crystals with Rapidly Fluxing Coulomb Alignments (Optically-Driven)

Given that the existence of two sets of two aligned Coulomb lines in an existing cubic metal lattice would be an impediment to room-temperature liquefaction of an existing metal structure, individual molecules of cubic metals must first be skewed into the characteristic rhombus shape. While it is quite difficult to deform an entire lattice i.e. it is self-reinforcing, it is comparatively easy to alter the relationship between atoms within molecules using Coulomb Force regardless of whether those molecules are part of a strong lattice. *Acids will corrode metal beams just as readily regardless of whether those beams are part of a building or not.* As Coulomb Force Lines are only self-cancelling when in direct opposition, offset-angle lines may pass through other lines under most conditions.

By nesting ordinary cubic metals such as iron within tailored crystalline structures and adding the ingredient of rapidly switched light, Coulomb Lines may be projected toward a cubic metal from an infinite variety of off-center angles which alter the orbital dynamics of valence electrons in the ordinary cubic metal's individual atoms. The amount of force needed to push even a large number of electrons into a different orbit is far less than the force needed to deform an established lattice, yet doing so can result in the deformation of cubic structures at the molecular level.

Through such a deformation, a proverbial building made out of cubic bricks would suddenly find itself made out of haphazard groupings of rhombus-shaped bricks with uneven mortaring, to use a architectural analogy. The instant that such a change were brought about, the solidity of the cubic metal would cease to exist as a property and it would become a liquid similar to mercury in its properties. This is potentially weaponizable given that the installation of CFL-projecting crystals around beams would be just as effective as heat-generating explosives in compromising the structural integrity of buildings made of steel.

As has been demonstrated, crystals may be optically switched in order to generate CFLs on an alternating basis. Surrounding common cubic metals with

crystals consisting of alignments of nodes from all directions (not unlike the configuration of seats in a baseball stadium relative to the pitcher's mound) combined with rapid alternation of an LED array on the outer perimeter of such a crystal structure could be used to introduce a third Coulomb line to a cubic metal lattice. If such a line were stable, there would be no measurable effect upon the solidity of the lattice for reason that the valence electrons would find new equilibrium still compatible with a cubic shape. *If, however, such lines were varied on a rotating basis, the valence electrons in the cubic metal would fail to find this equilibrium and the cubic structures would morph into rhombus structures as in mercury, even at room temperature.*

Conclusion

Although it was postulated in a previous publication that soliton waves converging from four directions could be used to liquefy metals (and this is certainly true,) rhombification of cubic metals through nesting within variable-orientation Coulomb Force Line Generators promises to be a superior method for room-temperature liquefaction of cubic metals given the reduced demand for energy and compact size. Applications include efficient heat transport and low-energy melting of metals for use in additive manufacturing processes.